JOIN THE ADVENTURE

Junior Explorer Handbook

BLM

Arizona Strip District & Gila District

ARIZONA TRAIL
NATIONAL SCENIC TRAIL

Arizona Trail
National Scenic Trail

National System of Public Lands
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Become a Junior Explorer!

A Junior Explorer explores the environment around them.
A Junior Explorer respects the plants, animals, land and other people.
A Junior Explorer encourages others to care for the land and its inhabitants.

How to earn your patch

Complete the activities and answer the Junior Explorer questions in this book while on the Arizona National Scenic Trail, at home, or in school. Then share your findings with others through the Online Forum (www.aztrail.org/juniorexplorer).

All Junior Explorers will receive a patch for a backpack or jacket.

Visit www.aztrail.org/juniorexplorer to learn more, or scan the QR code with a smartphone.

You can also make a copy of your completed booklet and mail it to:

Arizona Trail Association
P.O. Box 36736
Phoenix, AZ 85067-6736

Illustrator: Rachel Ivanyi
Authors:
Cole Habay, Matthew J. Nelson
& Jan Hancock

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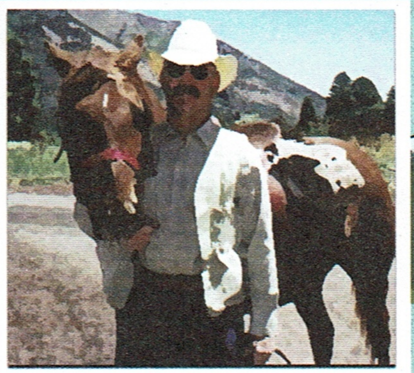
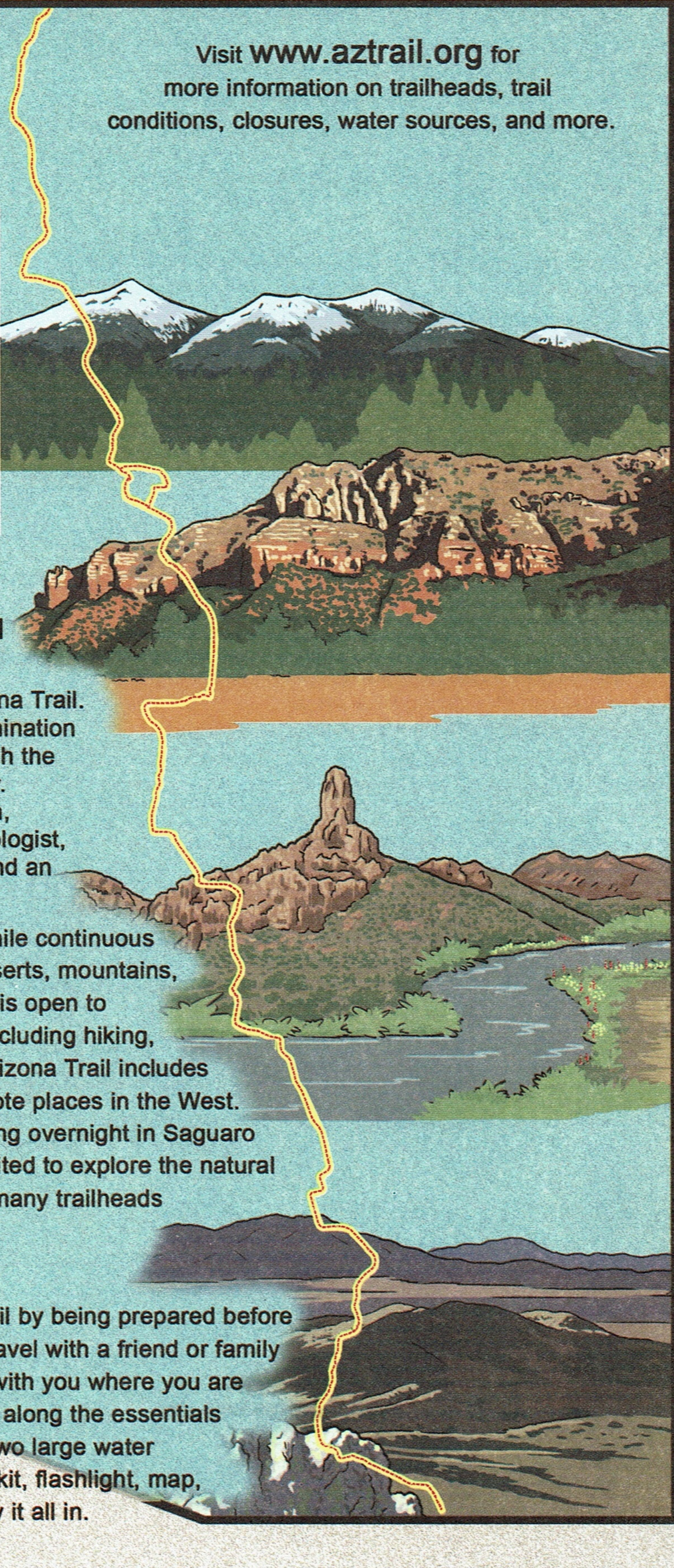
THE ARIZONA NATIONAL SCENIC TRAIL

Visit **www.aztrail.org** for more information on trailheads, trail conditions, closures, water sources, and more.





Dale Shewalter

Founder of the Arizona Trail and his horse Cimarron

Dale Shewalter is the father of the Arizona Trail. It was his vision, leadership and determination that turned the dream of a trail through the entire state of Arizona into reality. Dale was a teacher, outdoorsman, adventurer, hiker, horseback rider, geologist, harmonica player, inspiring leader, and an eternal lover of the land.

The Arizona National Scenic Trail is an 800-mile continuous path across the entire state that connects deserts, mountains, forests, canyons, communities and people. It is open to non-motorized forms of outdoor recreation, including hiking, mountain biking and horseback riding. The Arizona Trail includes some of the most beautiful, diverse, and remote places in the West. No permits are needed unless you are camping overnight in Saguaro or Grand Canyon National Parks. You are invited to explore the natural wonders of the Arizona Trail from one of the many trailheads throughout the state.

Safety

Help protect yourself and the Arizona Trail by being prepared before you head out for an adventure. Always travel with a friend or family member. Tell someone who is not going with you where you are going and when you plan to return. Bring along the essentials you'll need for the day, including water (two large water bottles), snacks, sun protection, first-aid kit, flashlight, map, compass, jacket, and a backpack to carry it all in.

ARIZONA-SONORA *Borderlands*

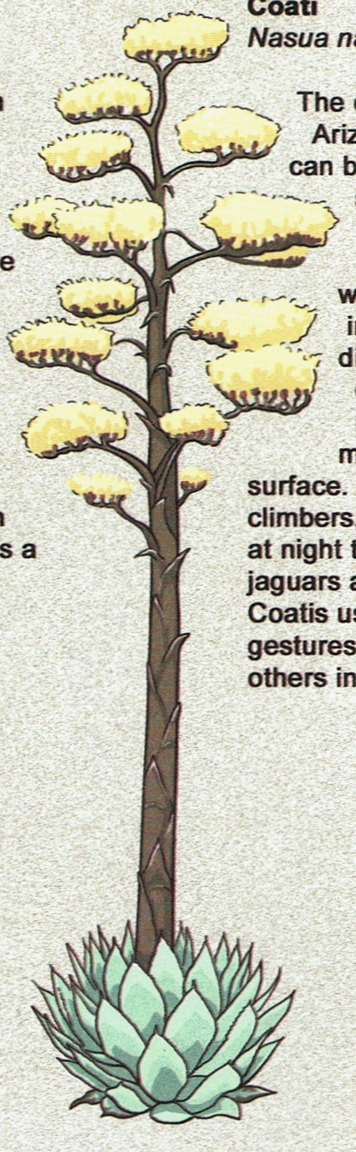
The Arizona National Scenic Trail adventure begins at the international border where the states of Arizona and Sonora, Mexico meet. It is a remote and peaceful place in the grasslands with incredible views of mountain ranges in all directions. From here, the trail begins its journey north through some of Arizona's wildest terrain, including an uphill hike into the Huachuca (wah-choo-ka) Mountains.

It was here where Dale Shewalter, the father of the Arizona Trail, was first inspired to build a trail from Mexico to Utah in the 1980s. Sitting on a peak near the border, Dale looked north and had a vision of a single trail connecting deserts, mountains, canyons, forests, communities and people. Over 30 years later, his dream became a reality thanks to thousands of volunteers who helped build the trail and agencies like Arizona State Parks, Babbitt Ranches, Bureau of Land Management, National Park Service, U.S. Forest Service, and the many counties through which the trail now travels. Many people worked together under Dale's guidance to make sure the dream would come true.

The beginning of the Arizona Trail is also the site of a very significant piece of American history. It was here, in the year 1540, that Spanish conquistador Francisco Vásquez de Coronado led the first European exploration of the Southwest and crossed into present-day Arizona. The Coronado National Memorial, located just east of the Arizona Trail, details the historic expedition.

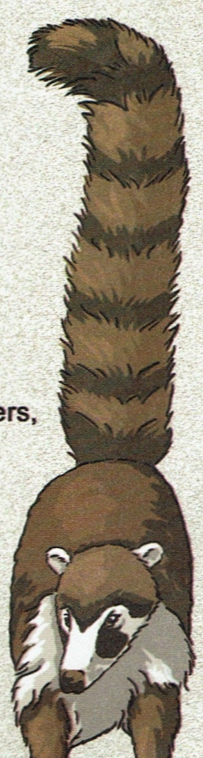
Huachuca Agave
Agave parryi huachucensis

Within Arizona's grasslands and mountain ranges are numerous types of agave (ah-gah-vay). This succulent grows very slowly in the shape of a rosette, which allows its sharp-pointed leaves to catch rain when it falls from the sky. Agave spends its entire life collecting water. It sends up a stalk, on which yellow flowers bloom. Then the entire plant falls over dead. Agave was among the most important plants for native people of the Southwest. The tough fibers of the leaves can be used to make rope, sandals, clothing and other textiles. When pit-baked, the heart of the agave produces a sweet, starchy food source.



Coati
Nasua narica

The coati (ko-wah-tee) is one of Arizona's unique creatures. It can be seen in the mountains of southern Arizona. Traveling in large groups called troops, coatis often walk with their tails straight up in the air. They are expert diggers and spend most of the day foraging for lizards, spiders, nuts, fruit, eggs and other morsels hiding just under the surface. Coatis are incredible tree climbers, and prefer to sleep in trees at night to avoid predators like jaguars and mountain lions. Coatis use vocal sounds and tail gestures to communicate with others in their troop.



FOLLOWING WATER *from top to bottom*

A watershed is an area where all the water, either on the surface or below the surface, flows into one place. John Wesley Powell, scientist geographer, put it best when he said that a watershed is "that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community."

In southern Arizona, ranges like the Huachuca Mountains and Santa Rita Mountains are very important watersheds. Snow and rain accumulate on the mountains, and flow downhill toward the San Pedro River and towns like Sierra Vista and Patagonia. In order to understand the importance of watersheds and how they affect water quality, you are encouraged to create your own watershed.

Materials:

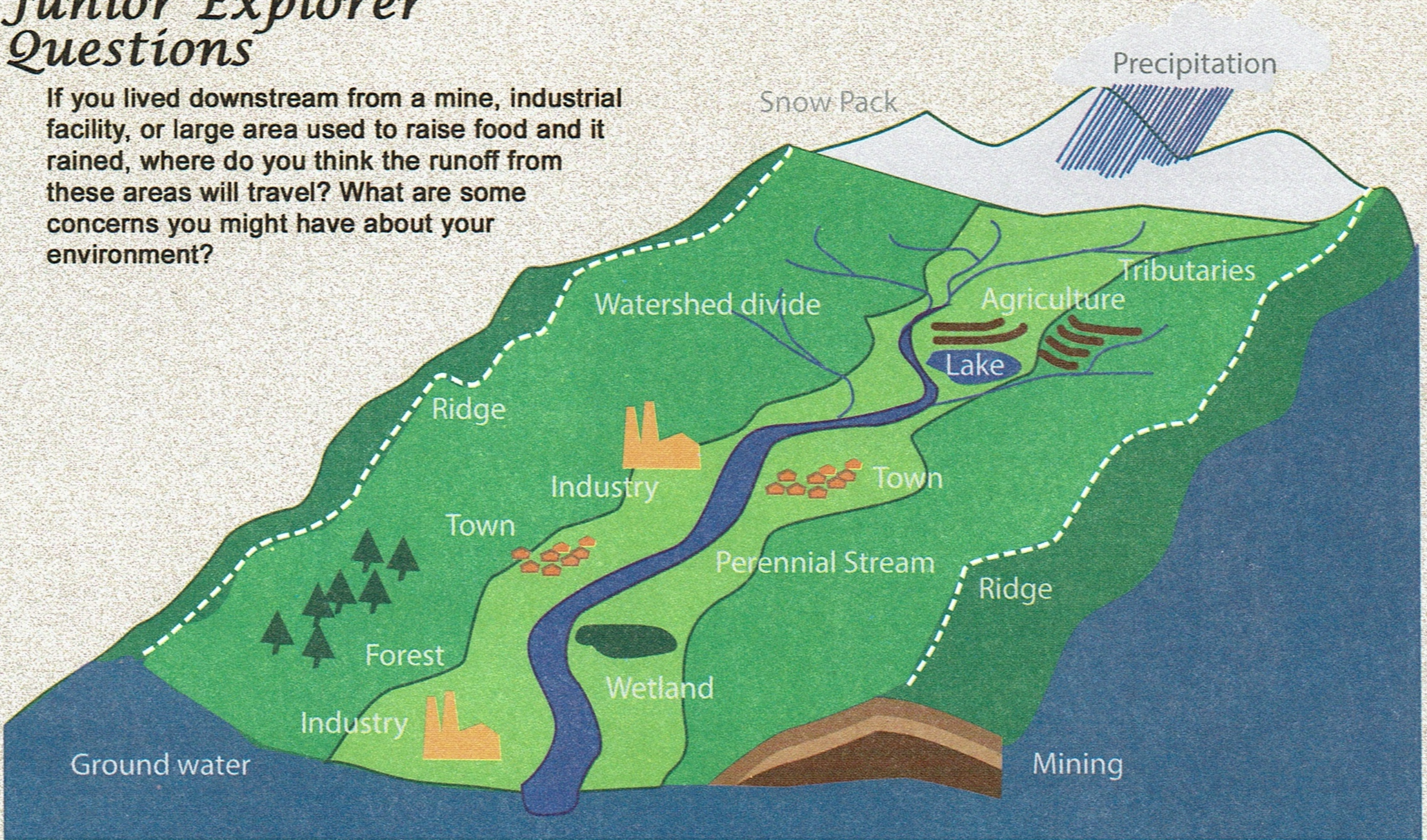
- Spray bottle with water
- different colors of non-permanent, water-based markers
- clear tape
- piece of plain paper

Directions: Take your piece of paper and crumple it loosely into a ball. Then unfold it carefully (without tearing the paper) and crinkle the page over your fist. Carefully remove it and place it on a flat surface (tape the sides down if necessary). The center highpoint is your mountain. Use a blue marker to draw lines where water travels – along each ridgeline (fold) and down each valley (crease) on the paper. Add lakes and ponds at bottoms of several large valleys or wherever the blue lines reach flat areas. Next, use a red or orange marker to draw tiny towns near your water and wherever you think a town would be best built near your watershed. Use a green marker for farms, gardens or agricultural areas. Uphill from there, use a brown marker to draw ranches or mines or logging areas, or any industry you think may benefit your town. Use the black marker for recent forest fires.

When you are finished drawing, begin slowly spraying water (use the mist setting) on the top of the mountain. Observe what happens to your streams, lakes and towns.

Junior Explorer Questions

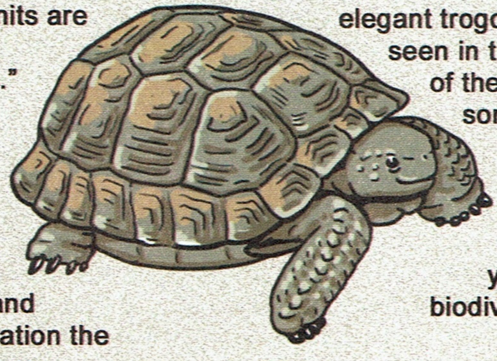
If you lived downstream from a mine, industrial facility, or large area used to raise food and it rained, where do you think the runoff from these areas will travel? What are some concerns you might have about your environment?



THE SKY ISLANDS

There are hundreds of mountains in southern Arizona, and when you travel from the bottom to the top you will see such a variety of plants and animals that it's almost like walking all the way from Mexico to Canada. Arizona is world-famous for its biodiversity (variety of life). It's easiest to see this within mountain ranges like the Huachucas, Santa Ritas, Santa Catalinas, Rincons, Superstitions and Mazatzals. Their summits are like islands rising out of a sea of desert, which is why they are called "sky islands."

Traveling through the sky islands gives you an opportunity to experience different biotic communities. Biotic communities are like neighborhoods, where plants and animals have adapted to a comfortable life based on moisture and temperature. As you travel higher in elevation the precipitation increases and the temperature decreases.



In Arizona, you will find numerous plants and animals that cannot be found anywhere else in the world (called endemic species). Other plants and animals, commonly found in Mexico or Central America, have found their way to the sky islands of Arizona. Rare cats like jaguars and ocelots have been seen in the Santa Rita Mountains, and the elegant trogon is a colorful bird that is normally seen in the mountains and jungles south of the border, but can be spotted in some of the sky islands.

Recognizing the different biotic communities and knowing what grows and lives there will give you a greater understanding of the biodiversity that exists in Arizona.

Junior Explorer Questions

What would happen if you planted a saguaro at the top of a mountain? Why? What do you think might happen to animals that live at the very tops of sky islands if the temperature continues to rise?

Biotic Communities along the Arizona Trail

Mixed Conifer Forest	Elevation: 8,000-10,000 feet Plants: aspen, fir, spruce Animals: black bear, canyon treefrog, Mexican spotted owl
Ponderosa Forest	Elevation: 6,000-8,000 feet Plants: ponderosa pine, gamble oak, cliff rose Animals: mountain lion, black rattlesnake, goshawk
Piñon-Juniper Woodland	Elevation: 5,000-7,000 feet Plants: piñon pine, juniper, buckthorn Animals: bobcat, garter snake, pinyon jay
Chaparral	Elevation: 4,000-6,000 feet Plants: manzanita, oak trees, mountain mahogany Animals: coyote, greater earless lizard, roadrunner
Grasslands	Elevation: above 3,500 feet Plants: grasses, agave, yucca Animals: prairie dog, gopher snake, red-tailed hawk
Desert Scrubland	Elevation: up to 3,500 feet Plants: saguaro, prickly pear, palo verde Animals: javelina, desert tortoise, cactus wren

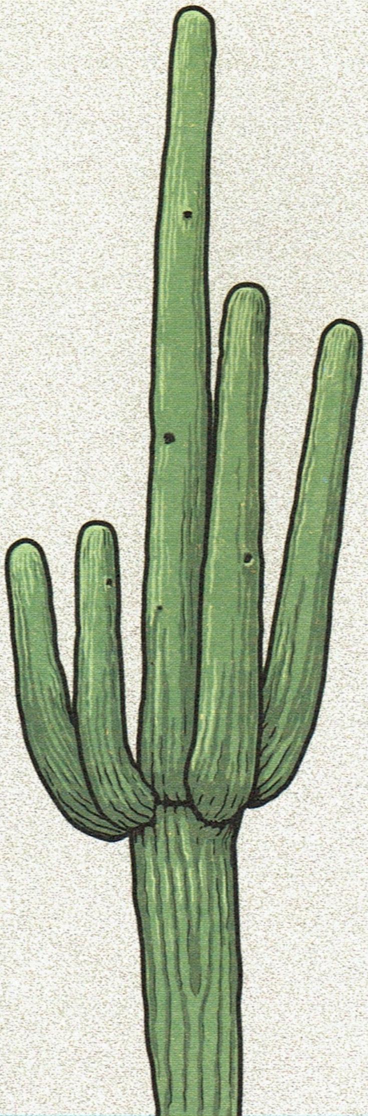
BIOTIC COMMUNITIES

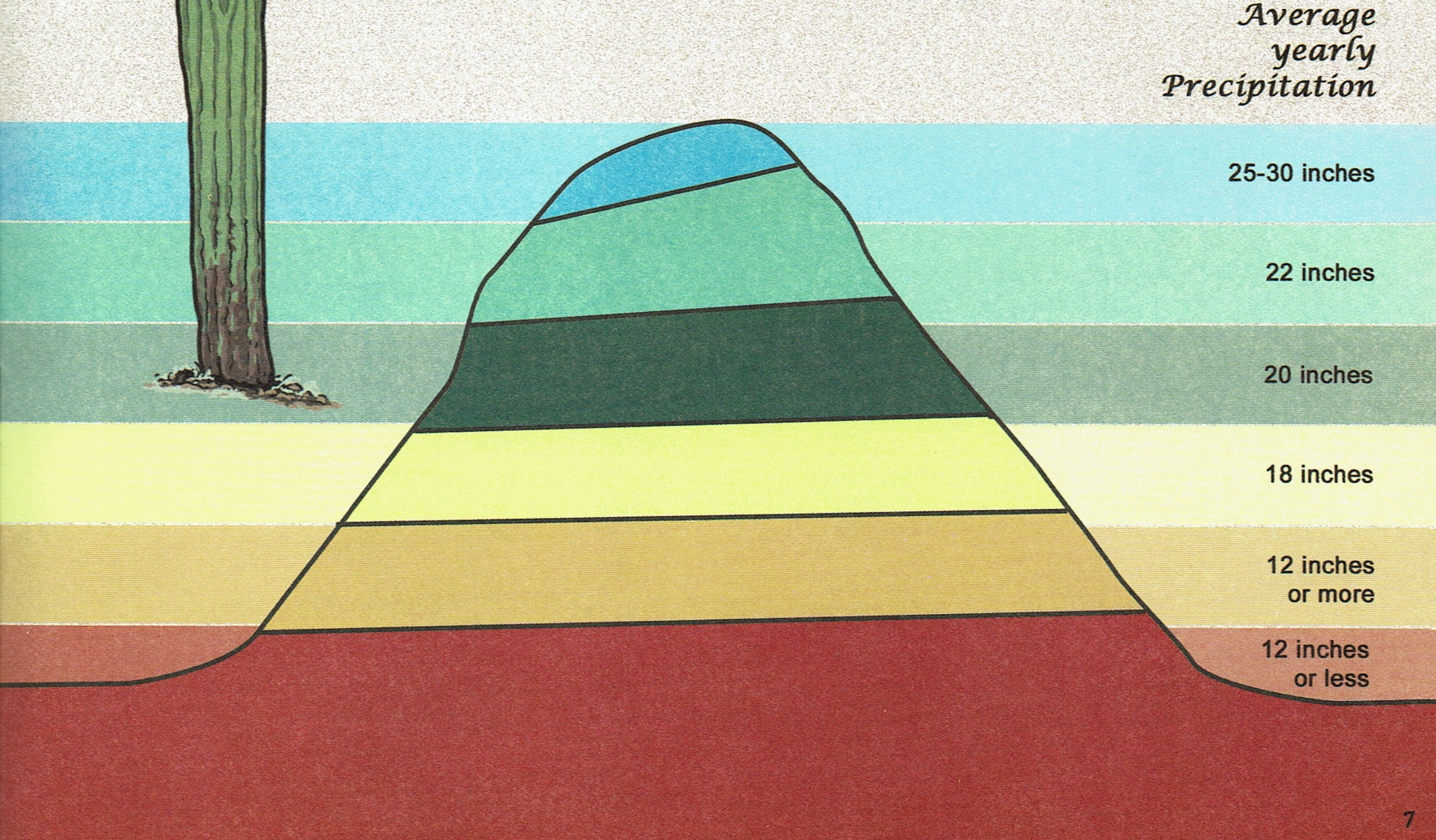
along the Arizona Trail

From the Sonoran Desert to the San Francisco Peaks, you will encounter nearly all of Arizona's biotic communities on the Arizona National Scenic Trail.

Directions

Make a biotic community chart by arranging the different zones based on elevation and precipitation. As you travel higher in elevation, the temperature decreases and the precipitation increases. Draw pictures or write the names of the different plants and animals found within each zone. Add plants and animals you think might also be found within each biotic community.




Average yearly Precipitation
25-30 inches
22 inches
20 inches
18 inches
12 inches or more
12 inches or less

THE GILA RIVER

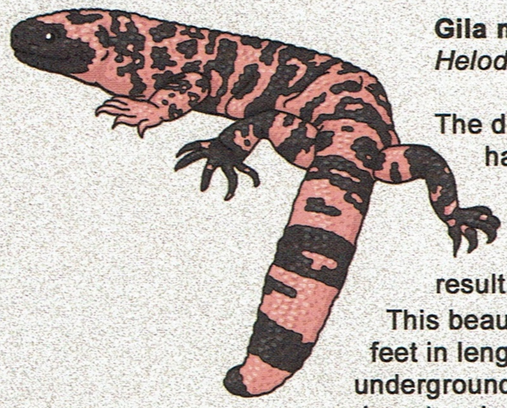
Water is life, and without it, there isn't much that can survive. Even in the driest parts of the desert, water is what sustains all living things. There are only a few flowing rivers in Arizona, and the Gila River is one of the most important. The Arizona National Scenic Trail follows this river for 16 miles, and it is an experience not to be missed.

Riparian zones represent the area where water and land meet. River banks, lake shores and dripping springs are a few examples of riparian zones. They are often called "ribbons of life" since riparian zones make up less than 1% of the land in Arizona, yet they benefit over one-third of all plants, birds, mammals, reptiles, fish and other creatures. Although these ribbons of life can be hard to find, they are Arizona's most important, and threatened, natural resource.

Since many of Arizona's animals regularly visit a riparian zone, chances are good you will find their tracks in the mud and soft soil near the water's edge. It is almost as much fun as seeing the animal itself, and good detective work will help you discover things about each animal's behavior. Walk carefully near the area where land and water meet, and pay very close attention to any scratches or prints in the soil. Draw what you find and identify what kind of animal was there not long ago by using an animal tracking guidebook.

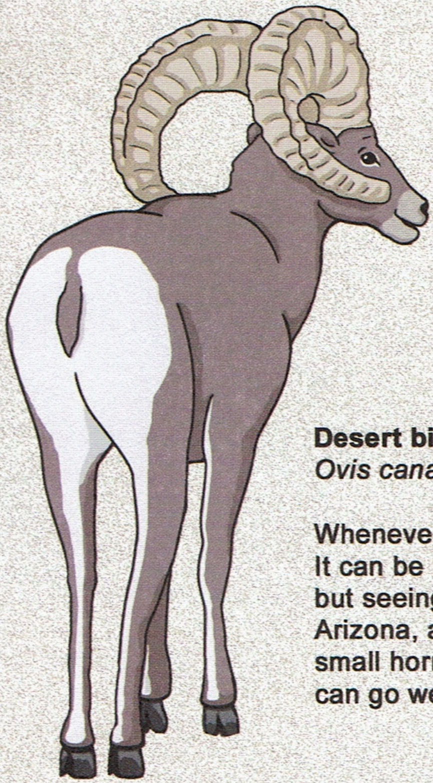
Once you find a good set of tracks, follow them. Where did the animal go? What was it doing? Was it moving fast or slow? Were there other animals it encountered along the way? By studying the tracks you find, you can write a story about what happened using the animals as characters.

In addition to supporting a rich diversity of plant and animal life, riparian zones have sustained Arizona's native people for thousands of years. Communities were established along the banks of rivers and near permanent water sources. As the climate changed and water sources disappeared, people were forced to move. There is evidence of ancient cultures living, farming and hunting along the banks of the Gila River. Their artifacts are an important part of Arizona history, and are protected by law. Please leave what you find so others can appreciate them, too.



Gila monster
Heloderma suspectum

The desert north of the Gila River is prime habitat for the Gila monster, Arizona's only venomous lizard. Although it has venomous glands in its mouth, bites to humans are rare and are usually a result of someone trying to touch or harass it. This beautifully beaded lizard can grow up to two feet in length and spends 90% of its life underground. If you see one crawling around the desert, enjoy it from a distance and consider the encounter a very special experience.



Desert bighorn sheep
Ovis canadensis nelsoni

Whenever you find high, rocky cliffs you're in the preferred territory of desert bighorn sheep. It can be hard to spot them due to their reclusive nature and excellent desert camouflage, but seeing a bighorn in the wild is a wonderful experience. They live in small herds throughout Arizona, and males (rams) develop massive curved horns over time. Females (ewes) have small horns, too. They are able to scale near-vertical rock with their specialized hooves, and can go weeks at a time without a drop of water.

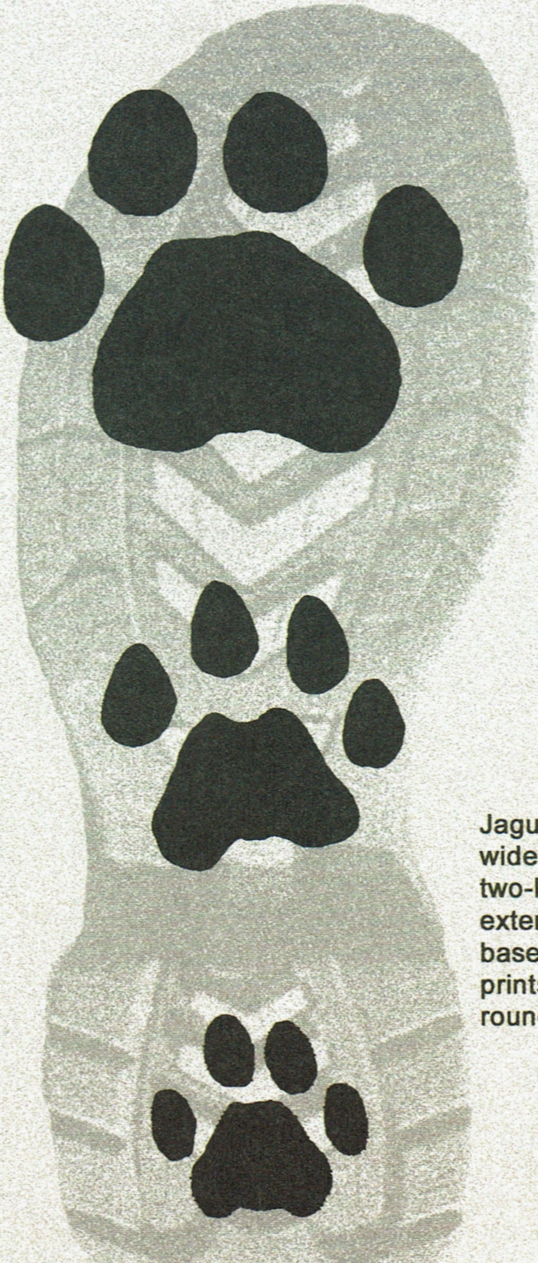
Junior Explorer Questions

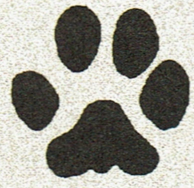
Since Arizona only has a few flowing rivers and riparian zones that are so important to plants and animals, what would Arizona be like if it had another waterway like the Colorado River? What would Arizona be like if one of its rivers dried up? Name three things you can do to help preserve what water is left in Arizona.

TRACKING FELINES *on the Arizona Trail*

Sightings of big cats are rare, but if you get to know the difference between the tracks of different felines you will be able to discover which animals are using the Arizona Trail when nobody else is around. Jaguars and ocelots are among the rarest cats in America, and both have been documented on the Arizona Trail.

Activity Directions
Read the track description for each of Arizona's wild cats, and draw a line between the animal and the track it leaves behind.

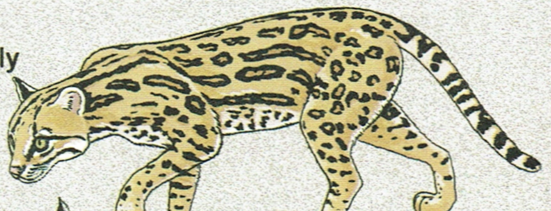


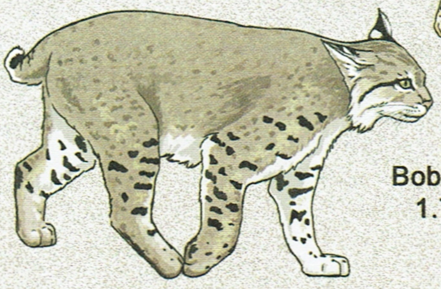


tracks shown 50% of actual size
Hiking boot for size comparison.

Ocelot

Ocelot tracks are approximately 2 inches wide. They have a blunt three-lobe pad and distinctive toe prints.

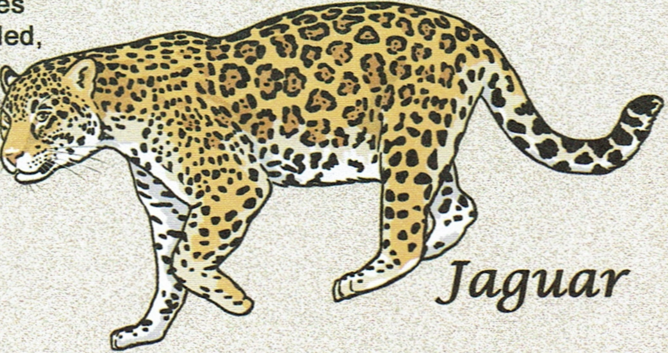




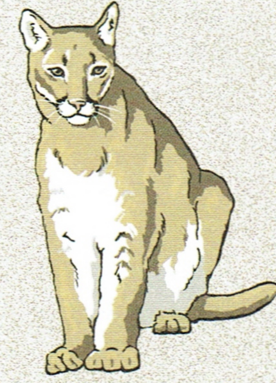
Bobcat

Bobcat tracks are approximately 1.75 inches wide. They have a three-lobe pad and separated toes.

Jaguar tracks are 4-5 inches wide. They feature a rounded, two-lobe heel pad which extends forward to the base of the toes. Toe prints are large and rounded.



Jaguar



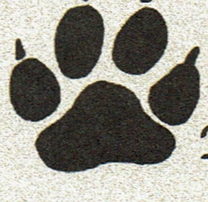
Mountain Lion

Mountain lion tracks are 3-5 inches wide. They feature prominent two-lobe heel pads. Toes are slightly pointed and are spaced away from the heel pad.

DON'T CONFUSE WITH CANINES

Canines don't retract their claws so the tracks have the prints of the toe nails.

Coyote



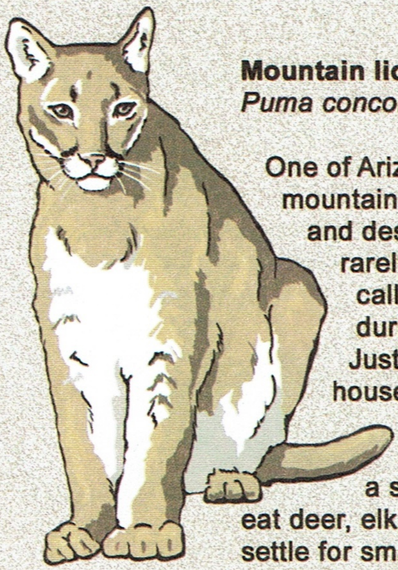
Dog

If you see the tracks of big cats, document them and contact the Arizona Game & Fish Department. Help us track felines on the Arizona Trail!

MOGOLLON RIM

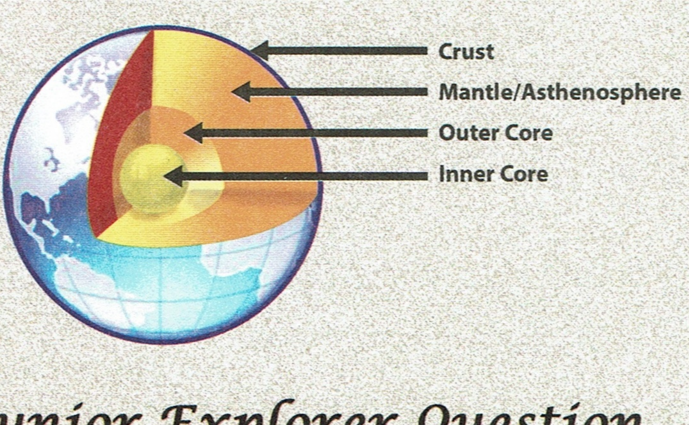
If you could fly high above Arizona, you would see there are two very different parts of the state: southern Arizona, with its hundreds of mountain ranges, and northern Arizona, a vast plateau whose only mountains are volcanoes that have bubbled up from the magma below the crust of the Earth. The natural dividing line between these two regions is the Mogollon (mug-ee-on) Rim. When heading north on the Arizona Trail, the Mogollon Rim marks the beginning of the Colorado Plateau.

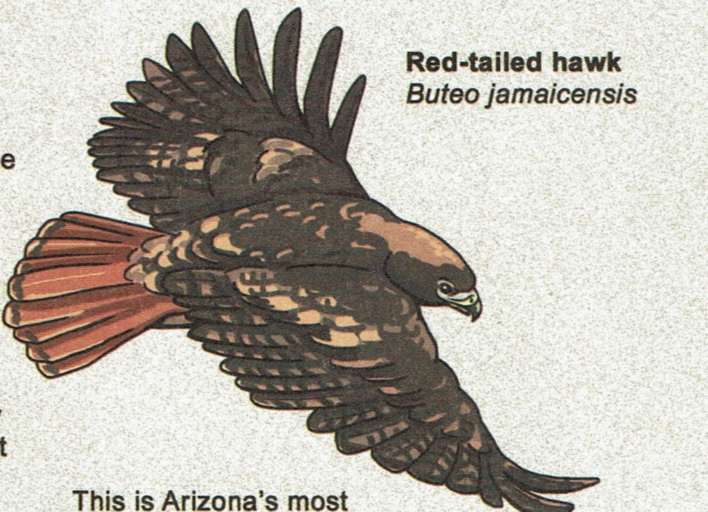
Plateaus are raised geologic formations that are caused by upward lift in the Earth's crust. Plateaus can be formed by magma pushing upward and moving vast amounts of rock and the plates that form the surface of a continent. The Colorado Plateau was probably formed by an upwelling of magma and then moved along faults or fractures in the crust. The various layers of rock (including the same formations you can see in Grand Canyon further north), dense forests, trickling creeks and abundant wildlife make exploring the Arizona Trail in Mogollon Rim country a lot of fun.



Mountain lion
Puma concolor

One of Arizona's most elusive animals, the mountain lion is abundant in mountain and desert habitats, although they are rarely seen. Mountain lions (also called cougars or pumas) sleep during the day and hunt at night. Just like their distant relatives the house cat, mountain lions are masters of stalking their prey and pouncing on them without a sound. Mountain lions prefer to eat deer, elk, and bighorn sheep, but will settle for smaller animals, too. Chances are you will never see a mountain lion in the wild, but when you find their scat and tracks in the forests of the Mogollon Rim, you will know they're not far away.





Red-tailed hawk
Buteo jamaicensis

This is Arizona's most common raptor (bird of prey) and is often seen perched on trees, telephone poles and saguaro cacti. Dark brown feathers and brick-red colored tail are a good way to recognize it. Its underside is often speckled with white and brown and black. The call of the red-tailed hawk is unmistakable – a raspy scream that lasts a few seconds and sounds like kree-eee-ar. You can see them soaring high above deserts and forests and hunting low to the ground with incredible speed and accuracy. Red-tailed hawks are at home just about anywhere between Alaska and Panama. No trip on the Arizona Trail would be complete without a visit from a red-tailed hawk.

Junior Explorer Question

Plates typically move about the same rate as your fingernails grow (about 2 inches per year). How long do think it would take to uplift the Colorado Plateau along the Mogollon Rim if the elevation change from top to bottom is about 5,000 feet?

CREAM-FILLED COOKIE

Plate Tectonics

Materials:

Crunchy cookies with a soft cream-filled center

Directions:

Take one cookie and remove the top by gently twisting.

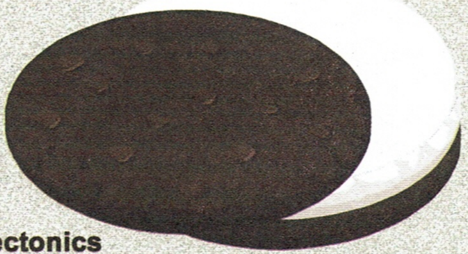
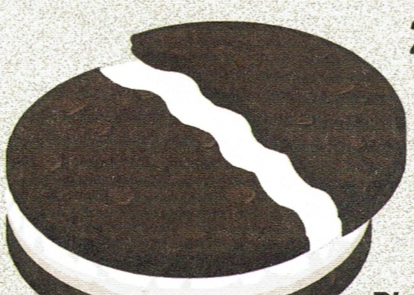


Plate Tectonics

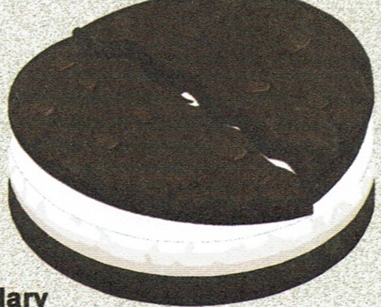
1) Slide the top (representing the plate or crust) over the soft filling (representing the asthenosphere or molten magma under the crust). This is how plates that form the Earth's outer crust move over the planet's surface.



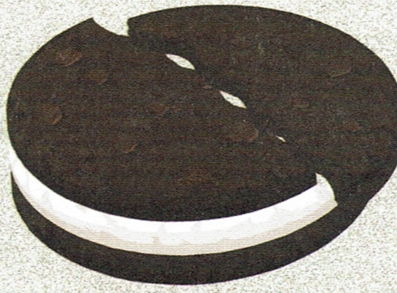
Divergent Plate Boundary

2) Take the top and break it into two parts or plates. Start with the edges together and gently move them away from one another. This is called a Divergent Plate Boundary and this type of plate movement can create valleys, canyons and trenches. Look at the shape created by the gap in the plates. It looks like a canyon, doesn't it?

3) Take the two pieces and slide them back together. This is called a Convergent Plate Boundary. Try to make one side of the cookie or plate slide under the other side. As the top plate rises, this simulates the motion that creates plateaus and mountain ranges as one plate displaces the other.



Convergent Plate Boundary



Transform Plate Boundary

4) Take the two top cookies and place them back on top of the creamy center. This time, slide the cookies or plates up and down along the crack. When two plates slide against each another, we call this grinding in opposite directions a Transform Plate Boundary. This movement is what causes earthquakes and fractures in the Earth's surface, most often deep under the ocean.

Play around with your cookie and see what landforms you can create. Then you can eat your science experiment!

SAN FRANCISCO PEAKS

As you travel along the Arizona National Scenic Trail near Flagstaff, you can't help but be amazed by the giant mountains in the distance – the San Francisco Peaks. The highest of the peaks is Humphreys Peak, the highest point in the state of Arizona at 12,633 feet. The Peaks are actually an ancient volcano that was much taller before it blew its top long ago. The explosion was so intense that pieces of the volcano have been found more than 1,000 miles away. The Arizona Trail follows a beautiful path around the base of the Peaks through pine and aspen forests.

Many Native Americans consider the San Francisco Peaks a sacred place. These mountains are a very important cultural resource for the Acoma, Apache, Havasupai, Hopi, Hualapai, Navajo, Southern Paiute, Yavapai and Zuni. The Peaks are very special to many non-native outdoor adventurers, including hikers, runners, equestrians, mountain bikers, skiiers and snowshoers. People are drawn to the Peaks from far away, and the segments of the Arizona Trail near here are some of the most popular in the entire State. The Peaks are just one of 600 different volcanic features near Flagstaff, and you can find all three classifications of volcanoes nearby, including:

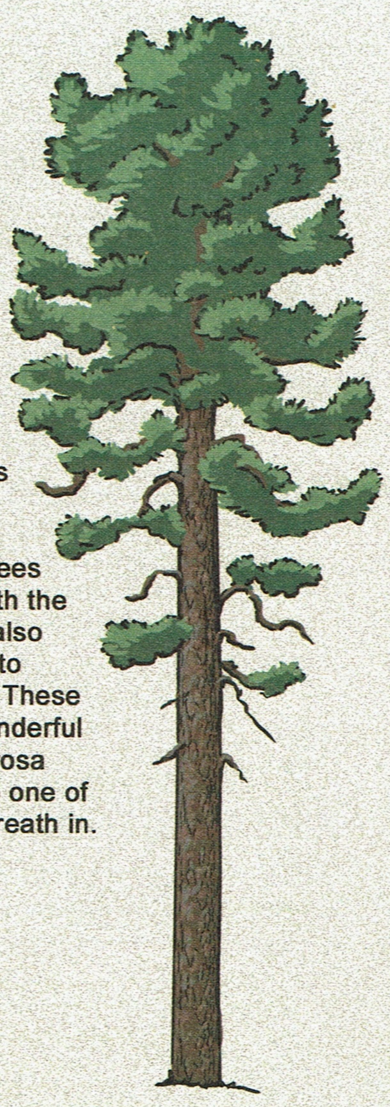
Stratovolcano: The San Francisco Peaks are the largest of this type of volcano. It is a composite dome that erupts and produces layers often rising thousands of feet above the floor below. A stratovolcano is known to explode during a violent eruption and blow out its top, forming a caldera. In the San Francisco Peaks, this is called the Inner Basin. It is a massive crater that collects water used by the people, animals and plants living nearby.

Cinder Cone: Sunset Crater is an example of a cinder cone. Most of these volcanoes have a single crater at the top that ejects gas-filled rocks like popcorn. These rocks are called cinders, which are very porous and commonly used to help with traction on icy road surfaces in the winter. Cinder cones rarely rise above 1,000 feet in elevation.

Lava Dome: Elden Mountain is an example of a lava dome. Lava domes are typically formed by bulbous lava that is too thick to travel far from its vent, creating interesting rock formations. Many of the formations on Elden Mountain are visible on the southeastern side of the volcano near the Arizona Trail's equestrian bypass route.

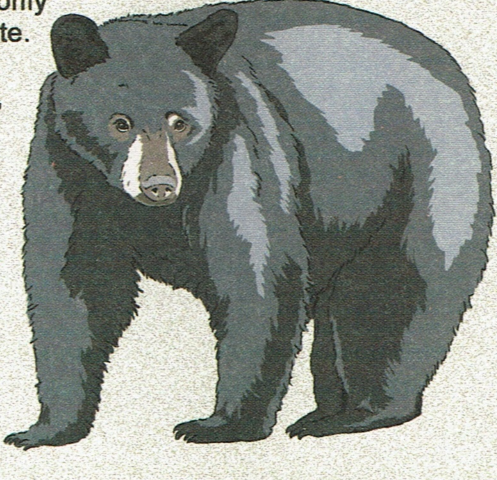
Ponderosa pine
Pinus ponderosa

These mighty trees can be found throughout northern Arizona and are a very important part of the ecosystem. Unlike many other trees, ponderosa pines need small forest fires to survive. Mature trees leak out a flammable sap to encourage fires which help clear the forest of smaller trees and shrubs that compete with the bigger trees for water. Fire also helps pop open their cones to grow new ponderosa pines. These trees have a particularly wonderful scent. Find a big old ponderosa and put your nose deep into one of the crevices. Take a deep breath in. What do you smell?

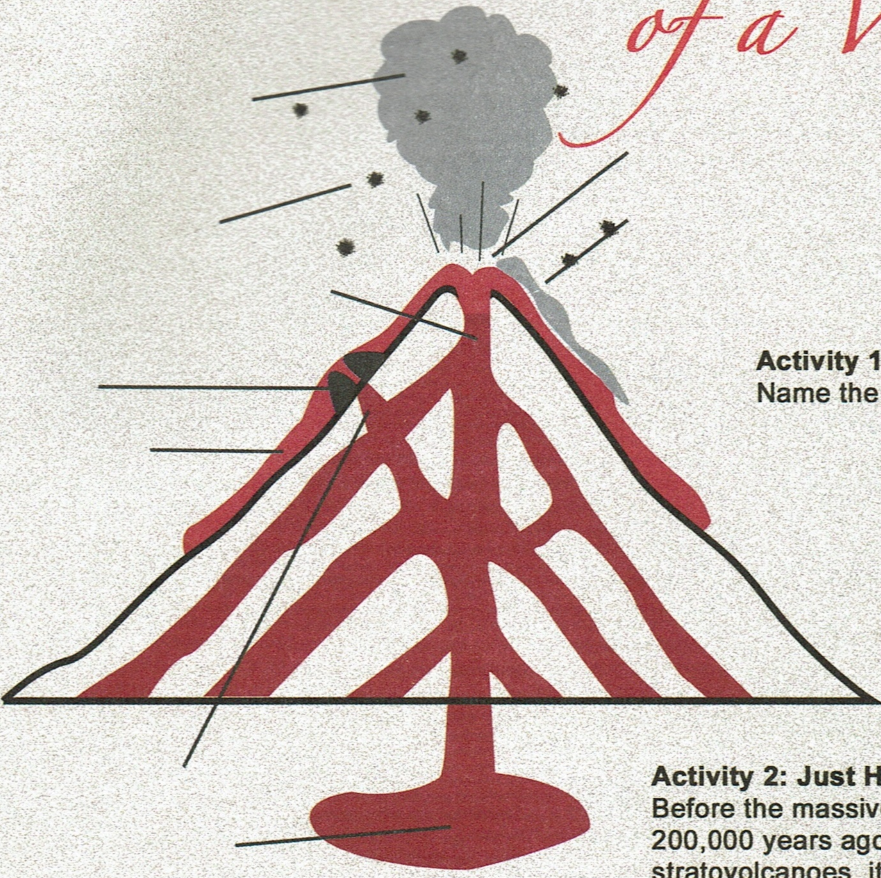


Black bear
Ursus americanus

Along the Arizona Trail you may be fortunate enough to spot a black bear, as there are healthy populations of this special animal throughout the Mogollon Rim and northern Arizona. Many of them are brown-colored, but should not be confused with brown bears (also known as grizzly bears). Most black bears can grow to 500 pounds. Their diet is 85% vegetation (grass, leaves, berries and nuts), but they will also eat insects, fish and small mammals. They hibernate through the winter (October through April) and while in their dens their heart rate can drop to only 8 beats per minute. While attacks on humans are rare, black bears are powerful creatures and should be enjoyed from a distance.



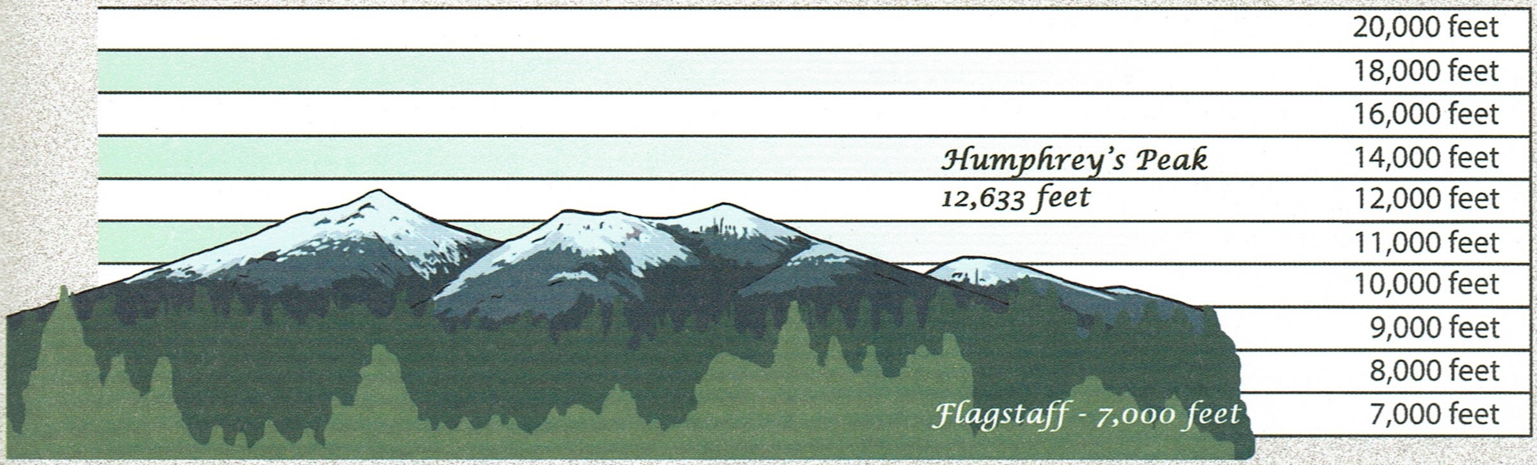
ANATOMY *of a Volcano*



Activity 1: The Anatomy of a Volcano
Name the different parts of a volcano using these words:

- ***magma chamber***
- ***lava flow***
- ***pyroclastic flow***
- ***secondary cone***
- ***volcanic bombs***
- ***main vent***
- ***crater***
- ***ash cloud***
- ***secondary vent***

Activity 2: Just How Big Was It?
Before the massive eruption of the San Francisco Peaks (about 200,000 years ago) the mountain was much taller. Like most stratovolcanoes, it was probably a nearly perfect pyramid shape. Using a pen, mathematics, and some creativity, determine the original height of the peaks and imagine what it would be like if we still had a mountain that tall in northern Arizona.



Directions: Draw a dotted line to connect each side of the San Francisco Peaks until they meet at a point in the sky. The dotted line should follow the same angle as the slopes. Use the elevation graph to determine the original height of the Peaks.

Junior Explorer Questions

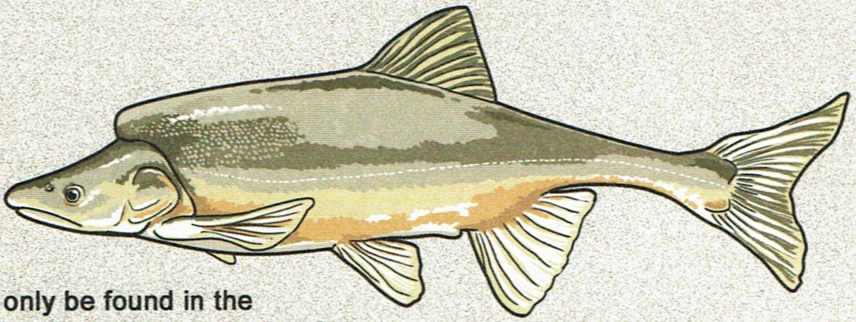
Based on your estimate of how tall the San Francisco Peaks were before they exploded, what would the climate be like near the summit? What animals could live there? How would the height of the Peaks affect the amount of water near Flagstaff?

THE GRAND CANYON

The Grand Canyon is one of the most magnificent natural wonders of the world, and the Arizona National Scenic Trail travels right through the heart of Grand Canyon National Park! Seeing the Canyon from the South Rim or North Rim is awesome, but to truly understand and appreciate the size of the canyon and the forces that have helped shape it, you need to go for a walk into its depths.

Thanks to the Colorado River, which has been carving a path for millions of years through the Earth to form the Grand Canyon, we can see many layers of different types of rock. The deeper you look into the canyon, the older the rocks are. Near the rim, the rocks are about 270 million years old. At the bottom, you can find rocks that are 1.7 billion years old. As you walk down the Arizona Trail, each step takes you 10,000 years back in time. By looking at all of the rock layers, you will begin to understand the history of the planet and how our environment has changed dramatically over time – from massive oceans to shallow marshes to towering sand dunes.

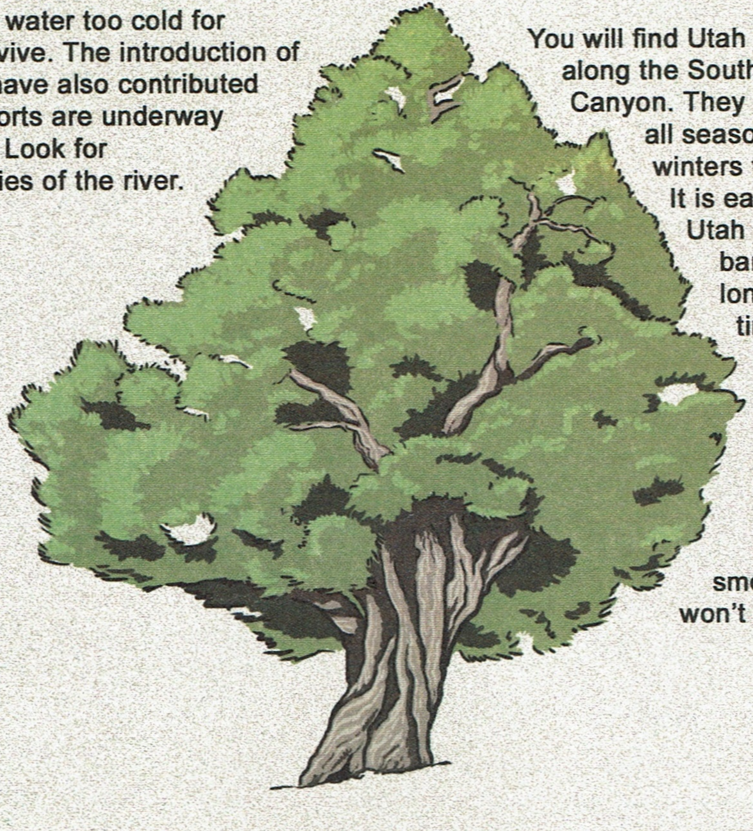
So how did the Canyon form? The answer is simple: DUDE! The processes of Deposition (particles being deposited over time), Uplift (the rising of the Colorado Plateau due to one tectonic plate pushing another one up very slowly), Down cutting (the Colorado River cutting through the layers), and Erosion (rain, snow and wind wearing down the rock to form the side canyons that make the Grand Canyon deeper and wider over time). DUDE processes are still occurring today as the Colorado River and other erosional forces carve the canyon deeper and wider at the rate of about the thickness of a piece of paper each year. Multiply that by millions of years and you get one big ditch!



Humpback chub
Gila cypha

This unique fish can only be found in the Colorado River and the rivers that connect to it. Humpback chub once flourished in the Colorado River, but have been disappearing since the construction of the Glen Canyon Dam, which releases water too cold for spawning and for young fish to survive. The introduction of rainbow trout and other sport fish have also contributed to the decline in their numbers. Efforts are underway to help save this endemic species. Look for humpback chub in the shallow eddies of the river.

Utah juniper
Juniperus osteosperma



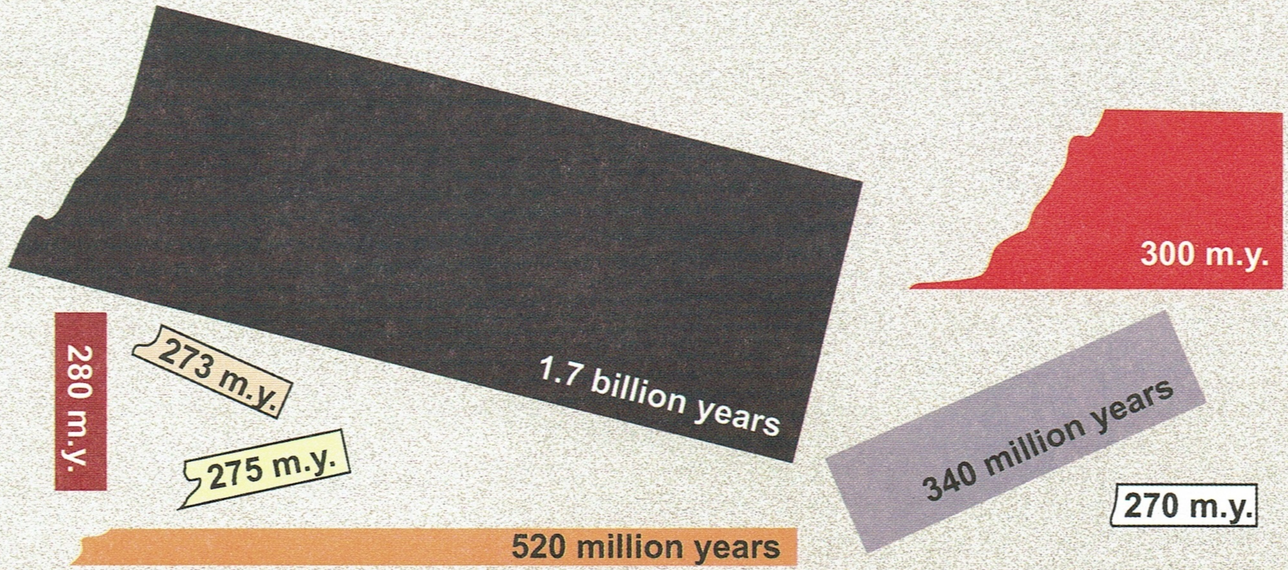
You will find Utah juniper trees growing along the South Rim of Grand Canyon. They are well-adapted for all seasons, from freezing winters to scorching summers. It is easiest to recognize Utah juniper trees by their bark that peels off in long stringy fibers and by tiny grey-green cones that look like berries. The wood from Utah juniper trees is used to build traditional Native American structures. It is strong, sweet smelling, and termites won't go anywhere near it.

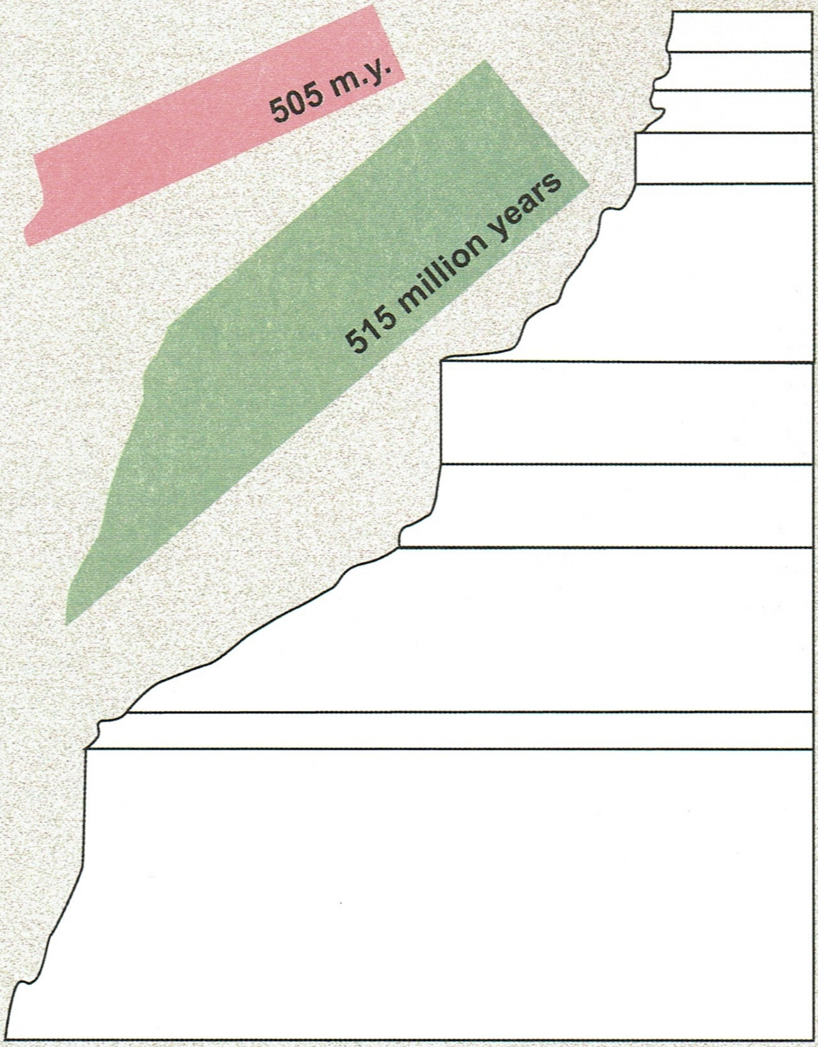
Junior Explorer Questions

There are dams built on the Colorado River at each end of the Grand Canyon. Think about what dams do for people and how they affect nature. What are some of the positive and negative things about dams on the Colorado River?

BUILD YOUR OWN *along the Arizona Trail*

Directions: Print this page from the online version to use to cut out the pieces so you don't spoil the next page. After carefully cutting out all of the rock layers, arrange them from the bottom to the top and glue or tape them in place. Use the ages of the rock to figure out the order (remember, the oldest rocks are on the bottom).
Materials: scissors & glue stick (or tape)


300 m.y.
1.7 billion years
280 m.y.
273 m.y.
275 m.y.
340 million years
270 m.y.
520 million years


505 m.y.
515 million years

Kaibab Limestone
Toroweap Formation
Coconino Sandstone
Hermit Shale

Supai Formation

Redwall Limestone

Muav Limestone

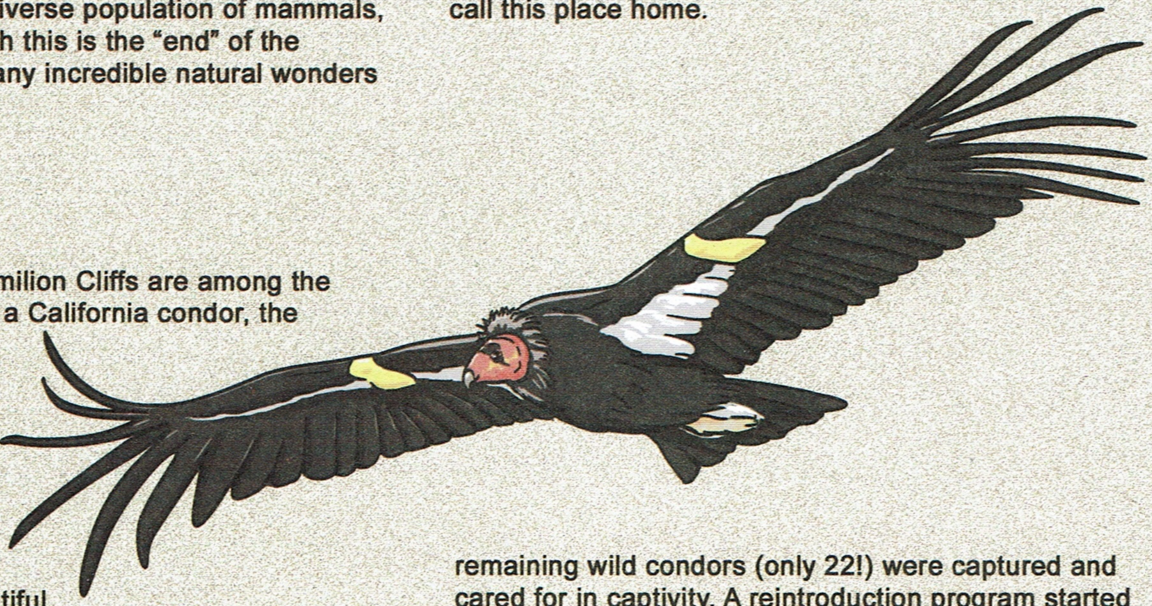
Bright Angel Shale

Tapeats Sandstone

Vishnu Schist &
Zoroaster Granites

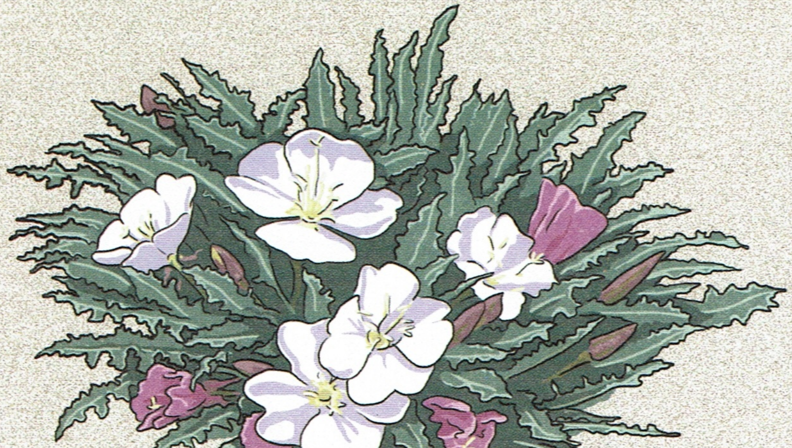
THE ARIZONA STRIP

North of the Grand Canyon, the Arizona National Scenic Trail descends in elevation from the pine forests of the Kaibab Plateau into the sagebrush desert and colorful sandstone cliffs near the border of Utah. This area of the state is called the Arizona Strip. It is the least populated region in Arizona, at least by humans. However, it is home to a diverse population of mammals, reptiles and birds. Although this is the "end" of the Arizona Trail, there are many incredible natural wonders to be explored nearby. Just to the north you will find the incredible sandstone domes of Coyote Buttes and The Wave, and world famous slot canyons like Buckskin Gulch and Paria Canyon. Nearby is Vermilion Cliffs National Monument, a magnificent and colorful escarpment that is famous for its scarlet-colored cliffs and the giant rare birds that call this place home.



California condor
Gymnogyps californianus

The Arizona Strip and Vermilion Cliffs are among the only places you might see a California condor, the largest land bird in North America. In flight, their wings measure almost 10 feet across. This allows them to soar up to 15,000 feet in the air and travel more than 150 miles per day. These giant birds were once plentiful throughout the United States, but started to rapidly disappear about 100 years ago from poaching, lead poisoning, and habitat destruction. In 1987, all of the remaining wild condors (only 22!) were captured and cared for in captivity. A reintroduction program started in 1991 and condors were released among the remote cliffs of northern Arizona and southern Utah. As of 2013, there were 72 condors in the wild near here.



Evening primrose
Oenothera caespitosa

This delicate white flower likes to grow in sandy soil and is one of the best smelling flowers you'll ever find. They open their blossoms in the early evening, attracting butterflies, moths and curious humans. When you find an evening primrose, take a moment to get down on your hands and knees and use your sense of smell to experience this amazing little flower.

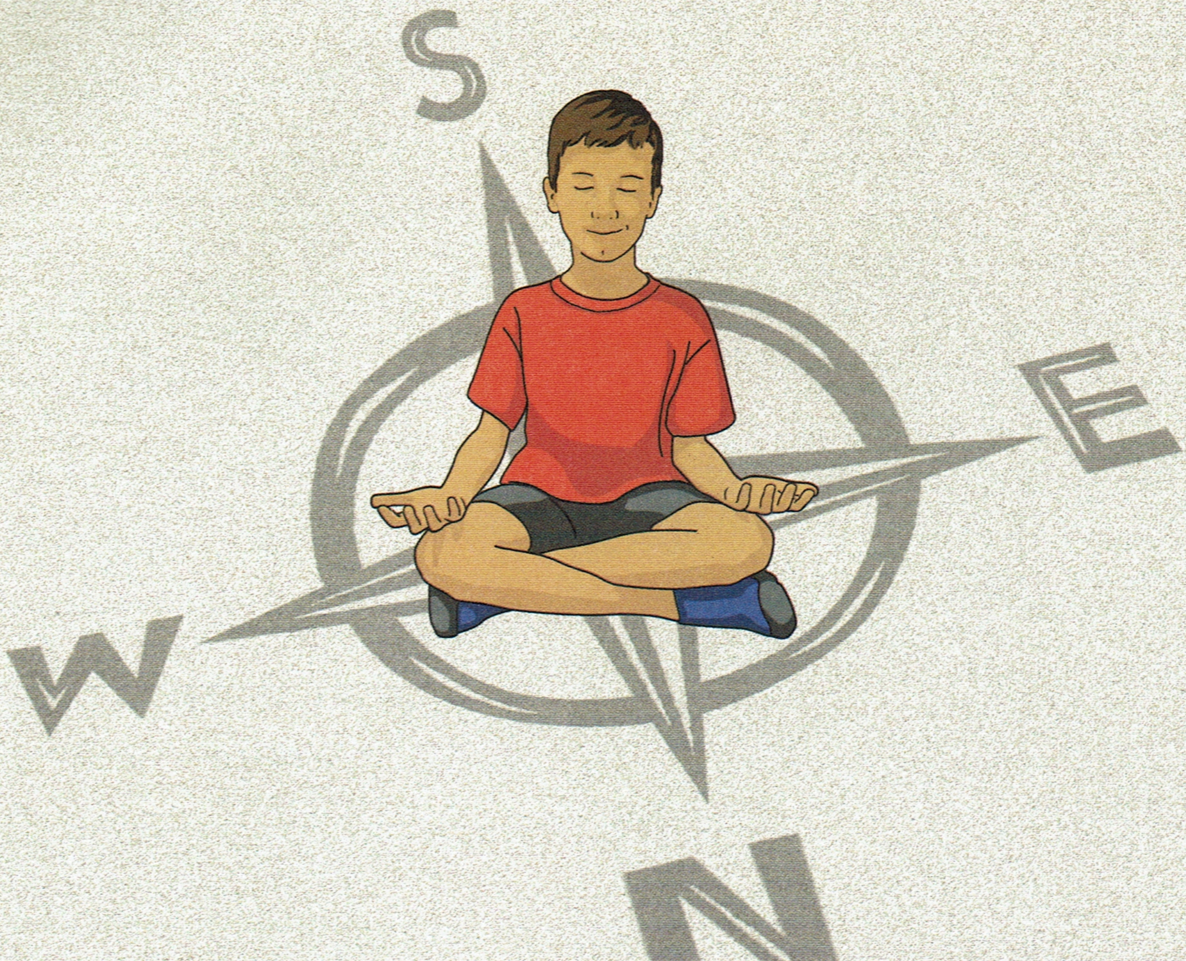
Junior Explorer Question

Why do you think the Vermilion Cliffs were a good place to reintroduce the California condors?

CREATE A SOUND MAP *along the Arizona Trail*

Even in the quietest places, there are so many sounds! Draw a sound map and use your amazing sense of hearing to discover the subtle sounds of nature that you might never notice with your other senses.

Directions: Find a quiet area away from roads and other people and choose a comfortable place to sit facing north, just like a map. When you are ready, close your eyes and listen to all of the sounds around you. Record what you hear by drawing pictures that represent the sounds coming from each direction on the map. The longer you sit, and the quieter you are, the more you will discover.

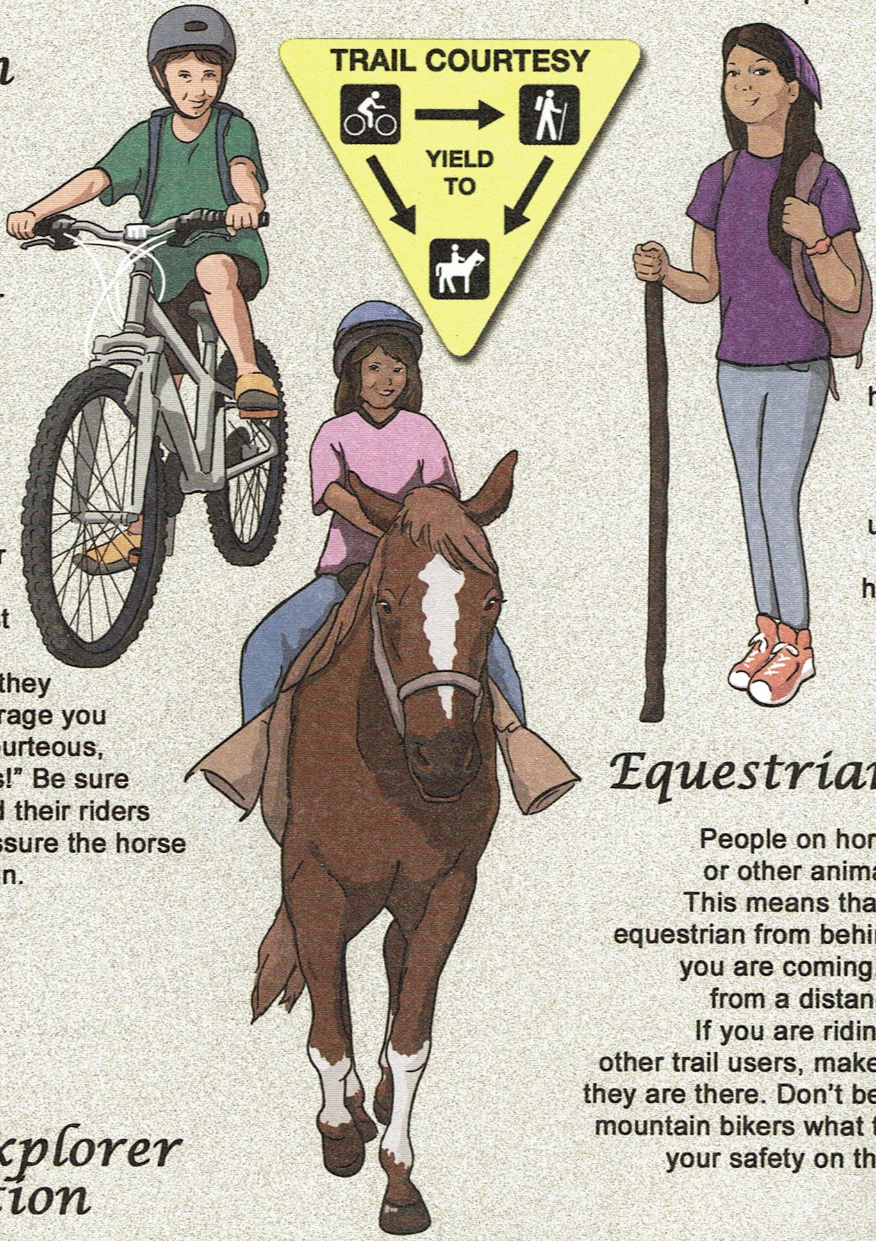


SHARE THE TRAIL
with other trail users!

The Arizona National Scenic Trail is special because it encourages all forms of non-motorized outdoor recreation, including hiking, running, backpacking, mountain biking, horseback riding, and even cross-country skiing and snowshoeing during the winter months. In order for all the different trail users to get along, it's very important to share the trail.

Trail ethics have been designed to help everyone understand what to do when you encounter another traveler while out on the Arizona Trail. By agreeing to a few basic principles, it makes everyone's experience better.

Junior Explorer Trail Ethics
#1 Be Kind
#2 Communicate
#3 Respect Others



Mountain Bikers

Since they move faster, mountain bikes should always give the right-of-way to other trail users. When you're riding on the Arizona Trail and you encounter others on foot or horseback, it's best to stop, step off the trail with your bicycle, and let others pass by. Most hikers will step off the trail as soon as they see you, and encourage you to ride by. This is courteous, so tell them "Thanks!" Be sure to talk to horses and their riders as they pass to reassure the horse that you are a human.

Hikers

It's easiest and safest for hikers, runners and backpackers to step off the trail and allow equestrians and mountain bikers to pass by. If you are hiking and you encounter another hiker coming in the opposite direction, the person traveling uphill has the right-of-way since they are working harder and have probably found an uphill hiking rhythm.

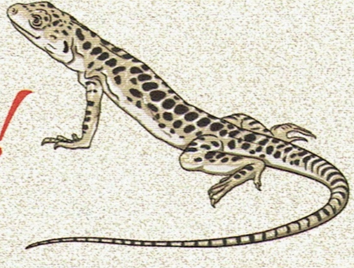
Equestrians

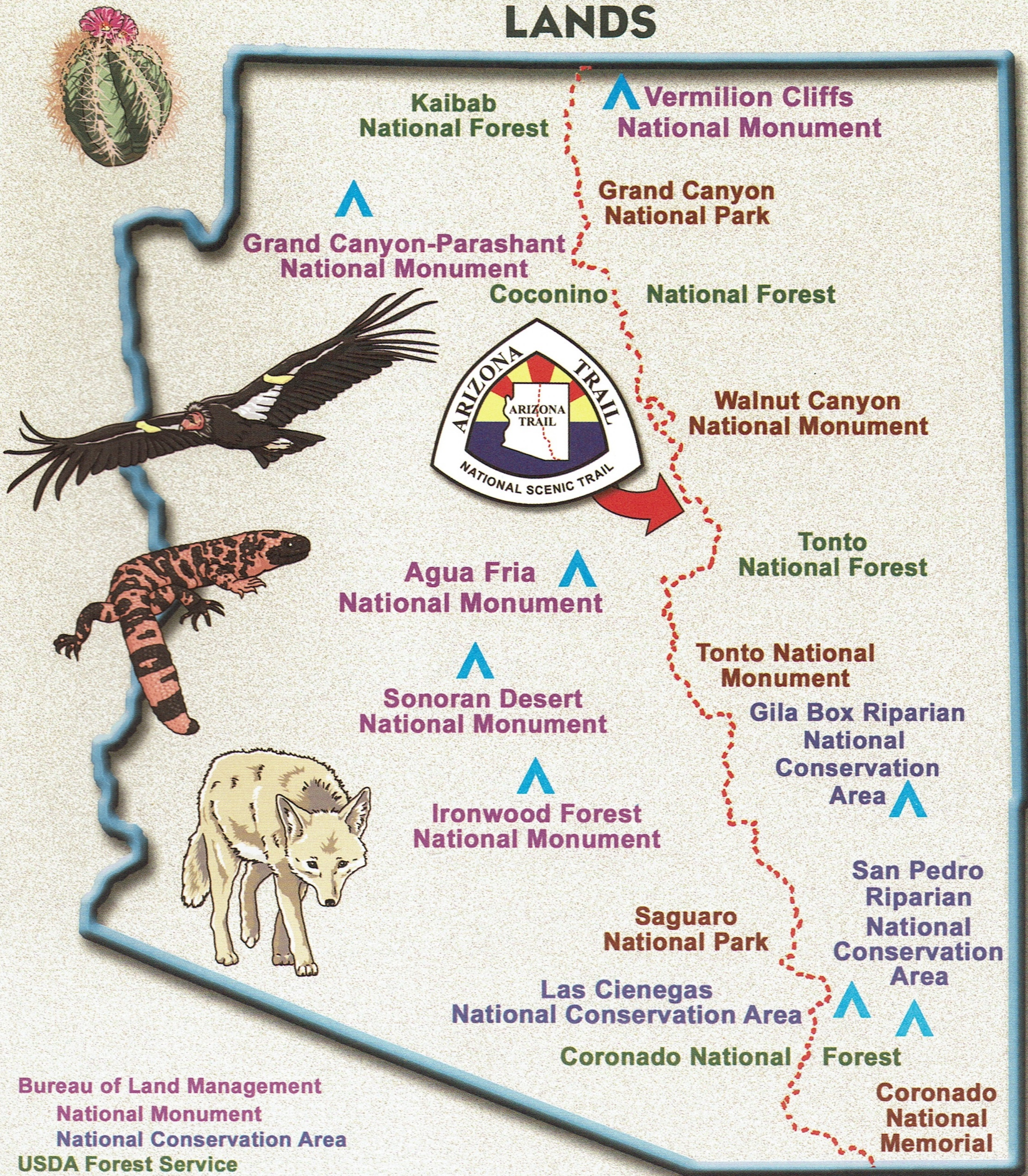
People on horses, mules, and donkeys or other animals have the right-of-way. This means that when you encounter an equestrian from behind, make sure they know you are coming. A nice friendly "Howdy!" from a distance usually does the trick. If you are riding an equine and you see other trail users, make sure your animal knows they are there. Don't be shy in telling hikers and mountain bikers what to do in order to maintain your safety on the back of a large animal.

Junior Explorer Question

The Arizona Trail needs people to help keep it maintained so other hikers, mountain bikers, and equestrians can enjoy the trail. What are some ways you can help?

MORE PLACES *to Play and Learn!* on the NATIONAL CONSERVATION LANDS




Kaibab National Forest
Vermilion Cliffs National Monument
Grand Canyon National Park
Grand Canyon-Parashant National Monument
Coconino National Forest
ARIZONA TRAIL
NATIONAL SCENIC TRAIL
Walnut Canyon National Monument
Tonto National Forest
Agua Fria National Monument
Tonto National Monument
Sonoran Desert National Monument
Gila Box Riparian National Conservation Area
Ironwood Forest National Monument
San Pedro Riparian National Conservation Area
Saguaro National Park
Las Cienegas National Conservation Area
Coronado National Forest
Coronado National Memorial
Bureau of Land Management
National Monument
National Conservation Area
USDA Forest Service
National Park Service

Junior Explorer Oath

I promise to help protect the Arizona National Scenic Trail, public lands, my community and the Earth by being an active and responsible steward of the environment.

I promise that I will not feed wild animals.

I promise to leave rocks, plants, artifacts and historic objects as I found them for everyone to enjoy.

I promise to explore, learn about and respect the world wherever I go.

I promise I will share what I learn with others.

Signed ______________________________

Date ______________________________

The Arizona National Scenic Trail has many PARTNERS that help keep the 800-mile pathway maintained and preserved. The Arizona Trail's national agency partners include the Bureau of Land Management, the U.S. Forest Service and the National Park Service. These agencies also partner with the Arizona Trail Association, a nonprofit organization whose mission is to build, maintain, promote, protect and sustain the Arizona Trail as a unique encounter with the land. All of these Arizona Trail Partners are proud of you for completing your Junior Explorer handbook.

Arizona Trail
ASSOCIATION